REMARKS

In the Office Action mailed January 13, 2009, the Office objected to the IDS filed December 2, 2005 because it failed to list all of the references submitted for consideration by the Office. In addition, the Office objected to the drawings on grounds that Figure 1 should be labeled as "Prior Art," that the figures contain reference characters not mentioned in the description, that the figures do not include reference characters mentioned in the description, and that Figures 5 and 6 are illegible due to excessive shading.

Further, the Office rejected claims 12-20 under 35 U.S.C. § 112, ¶ 2 as indefinite for reciting "heat producing chamber." Likewise, claim 19 was rejected under 35 U.S.C. § 112, ¶ 2 for reciting "regenerated." The Office also rejected claims 12-16 under 35 U.S.C. §102(b) as being anticipated by *Paulson et al.* (U.S. Pat. No. 3,261,145). The Office rejected claims 12, 18, and 19 under 35 U.S.C. §102(b) as being anticipated by *Crawford* (U.S. Pat. No. 2,433,741). The Office further rejected claims 17 and 18 under 35 U.S.C. §103(a) as being unpatentable over *Paulson* in view of *Rush et al.* (U.S. Pat. No. 3,889,742). Last, the Office rejected claim 20 under 35 U.S.C. §103(a) as being unpatentable over *Paulson* in view of *Mager et al.* (U.S. Pat. No. 4,999,034).

Independent claim 12 and dependent claims 13-20 are currently pending. For the reasons given below, Applicant respectfully submits that the references fail to disclose, teach, or even suggest the presently claimed invention and request that the rejection of the claims be withdrawn.

I. Non-Compliant IDS

On May 11, 2009, Applicant's representative engaged in a call with the Examiner regarding the non-compliant IDS filed on December 2, 2005. The Examiner indicated that four

of the non-patent literature (NPL) documents filed with the Office on December 2 did not appear on the face of the corresponding IDS. Applicant's representative explained that another firm had filed this IDS and that these references were not contained in the file that was transferred to representative's firm. Applicant's representative further explained that the NPL documents were inaccessible on PAIR; a fact that the Examiner independently verified. The Examiner indicated that he believed it may be against Patent Office procedure for him to provide the citations of the missing references to Applicant, although no statute or rule was cited to support this position.

As a result, Applicant's representative sent a letter to Schmeiser, Olsen & Watts LLP, the firm that filed this non-compliant IDS, requesting copies of any of these NPL documents still in their possession. They responded on May 18, 2009 that they no longer had a file associated with this case. In addition, Applicant's representative called the Patent Office's Electronic Business Center (EBC) to ensure that our customer number was properly associated with the online file for this application, which the EBC confirmed. Accordingly, Applicant requests that the Examiner provide these four missing citations so that Applicant's representative may correct any errors in the IDS; alternatively, Applicant respectfully requests that the Patent Office provide the legal basis whereby it may not provide those references to Applicants, the owner of the current application. Applicant also requests confirmation that it is not necessary to resubmit copies of each NPL document formerly submitted, since the Office has acknowledged on page 3 of the Office Action that this information has been placed in the file.

II. Amendments to the Drawings

Applicant has amended Figure 1 by adding the "PRIOR ART" label and by removing the following reference characters: G_d, V_{dh}, G_e, V_{eh}, ΔG, z = h, z = O, FD x_D, FB, G_d, V_{dO}, G_e, V_{eO}, 90, and 92. Figure 2 has been amended by removing FD x_D and FB. Figure 3 has been amended

by removing FD' x_D and FB $x_{B'}$. Figures 5 and 6 have been replaced with unshaded versions of the same graphs. Replacement Sheets and Annotated Sheets are included with this submission.

III. Amendments to the Specification

Applicant has amended the specification to correct a typographical error that inverted reference characters 255 and 257 on page 12, lines 3-4. This correction does not result in the addition of new matter and is supported in the ensuing discussion on page 12, lines 5-15 and by Figure 4.

Applicant has amended the specification to include omitted reference characters 190', 190'', 192', and 192''. This correction does not result in the addition of new matter and is supported by Figures 2-3 and at page 10, lines 14-18.

Applicant has amended the specification to correct a typographical error, replacing 310b2 with 410b2. This correction does not result in the addition of new matter and is supported by Figure 9.

IV. Claim Amendments

Applicant has amended claim 12 to add a colon (" : ") after comprising. Applicant also has added "a" before "spent desiccant stream" in the last clause of claim 12 to provide proper antecedent basis. Applicant further replaced claim 12's "heat producing chamber" with "heat-absorbing chamber," which is supported, for example, at page 11, line 26 through page 12, line 19.

In addition, Applicant has amended claim 12 to include a shared slip stream pipe coupled to both the gas inlet to the heat-releasing chamber and the gas inlet to the heat-absorbing chamber. Support for this amendment is found, for example, in Figure 4 (reference character

250) and page 12, lines 2-4. Therefore this amendment does not constitute the addition of new matter.

Further, Applicant has amended claim 19 to depend from claim 17 instead of claim 18. Support for this amendment is found at page 12, lines 20-31. Applicant has also amended claim 19 to correct a typographical error, replacing "desiccant regenerated" with "desiccant regenerator," as shown in Figure 4 and discussed at page 12, lines 20-31.

V. Rejection of Claims 12 & 19 Under 35 U.S.C. § 112, ¶ 2

The Office asserts that the "heat producing chamber" limitation recited in claim 12 is indefinite. Applicant thanks the Examiner for calling this error to attention. As stated above, this limitation has been amended to recite a "heat-absorbing chamber."

The Office also asserts that the "desiccant regenerated" limitation in claim 19 is indefinite. Applicant again thanks the Examiner for calling this error to attention. As stated above, this limitation has been amended to recite "desiccant regenerator."

VI. Rejection of Claims 12-16 Under 35 U.S.C. § 102(b)

Claims 12-16 were rejected under 35 U.S.C. § 102(b) as being anticipated by *Paulson*. Applicant respectfully traverses the rejection. To establish anticipation under 35 U.S.C. 102 (b), the cited reference must teach each and every element of the claim at issue either expressly or inherently. According to MPEP 2131, "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference."

Solely in order to expedite prosecution and without prejudice to the re-filing of the claims in their original form, Applicant amended claim 12 to recite a shared slip stream pipe coupled to both the gas inlet to the heat-releasing chamber and the gas inlet to the heat-absorbing chamber.

As seen in Figure 4, "a slip stream of hot humid air 250 from a Dewvaporation column can be split into gas 255 for heat-releasing chamber 215 and gas 257 for heat-absorbing chamber 220." *Specification*, p. 12, ll. 2-4. This allows the continuous contacting heat exchanger 205 to use just one fluid source.

At best, *Paulson* teaches an annular water jacket 36 surrounding a cylindrical absorption chamber 24 with a gas inlet cone 30 for admitting atmosphere, where the absorption chamber 24 is connected to a reactivation chamber 48. *Paulson*, col. 3, ll. 34-72. A water inlet pipe 38 and a water outlet pipe 40 are joined to the water jacket and provide for continuous flow of cooling water through the water jacket. *See Paulson*, col. 3, ll. 65-67. Thus, *Paulson* teaches an absorption chamber that receives atmosphere from one source, namely a furnace, via a gas inlet cone and a water jacket that receives cooling water from a second source via a water inlet pipe.

The fluids employed in *Paulson*'s absorption chamber and water jacket cannot be used interchangeably. For example, if cooling water was used in *Paulson*'s absorption chamber the desiccant would become immediately saturated by the water and rendered ineffective. Not to mention that the purpose of *Paulson*'s invention is to condition atmosphere from a furnace, not water. The same is true in the reverse. To illustrate, *Paulson* teaches that "cooling water" is required in the water jacket to maintain the absorption chamber at "a relatively constant temperature," not atmosphere at the same temperature as that entering the absorption chamber. *Paulson*, col. 3, ll. 59-65. Thus, *Paulson* teaches a gas inlet cone and water inlet pipe each coupled to a separate source, where the sources supply two different fluids at two different temperatures. This is unlike claim 12 which recites "a ***shared*** slip stream pipe coupled to both the gas inlet to the heat-releasing chamber and the gas inlet to the heat-absorbing chamber" which delivers gas from a single source. *See Specification*, p. 12, ll. 3-4 (emphasis added).

Moreover, claim 14 recites that the apparatus of claim 12 further comprises an inlet and an outlet in the heat-absorbing chamber for a *liquid* having a component evaporable in the gas. The Office equates this *liquid* inlet and outlet to the water inlet and outlet in Paulson's water jacket. *See Jan. 13, 2009 Office Action*, p. 11, ¶ 2. However, the Office fails to then identify the structure in Paulson that anticipates the heat-absorbing chamber's *gas* inlet and outlet.

Based on the foregoing, Applicant respectfully requests reconsideration and withdrawal of the rejection of independent claim 12 and its dependent claims 13-16.

VII. Rejection of Claims 12 and 18-19 Under 35 U.S.C. § 102(b)

Claims 12 and 18-19 were rejected under 35 U.S.C. § 102(b) as being anticipated by *Crawford*. Applicant respectfully traverses the rejection.

At best, *Crawford* teaches a dehumidifying chamber 10, 20 coupled to a brine precooler 6, 37 via a pipe 17, 38, which carries a strong brine solution. *Crawford*, Figs. 1-2; col. 3, ll. 48-52; col. 4, ll. 28-40; col. 5, ll. 17-29. The Office asserts that pipe 17, 38 teaches a "common heat transfer wall capable of providing thermal communication between the heat-releasing chamber and heat-absorbing chamber," as recited in claim 12. *See Jan. 13, 2009 Office Action*, p. 13. Applicant strongly traverses this assertion in view of the fact that these two chambers have no shared wall and are completely separate and apart, connected only by a delivery pipe 17, 38. In fact, if the dehumidifying chamber 10, 20 shared a common wall with the brine precooler 6, 37 that would defeat the purpose of the "precooler," which is to cool the brine prior to entering the dehumidifying chamber, not to heat the brine. *Crawford*, Col. 4, ll. 37-40. Therefore, *Crawford* actually teaches away from Applicant's claimed invention.

Thus, Crawford's brine precooler and dehumidifying chamber are unlike claim 12's heat-releasing chamber and heat-absorbing chamber which share a common heat transfer wall. Based

on the foregoing, Applicant respectfully requests reconsideration and withdrawal of the rejection of independent claim 12. Further, without acquiescing in the assertions in the Action regarding the dependent claims, Applicant submits that dependent claims 18-19 are allowable for at least the reason that they depend from allowable claim 12.

VIII. Rejection of Claims 17 and 18 Under 35 U.S.C. § 103(a)

Claims 17 and 18 stand rejected under 35 U.S.C. § 103(a) as allegedly obvious over *Paulson* in view of *Rush*. To establish a *prima facie* case of obviousness, "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." MPEP § 2143.03 (citing *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970)). "If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious." MPEP § 2143.03 (citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)). The Office states that it would have been an "obvious case of simple substitution" to substitute *Paulson*'s heating coils with *Rush*'s heated ambient air. But the Office offers no discussion as to why one of skill in the art would combine *Paulson*'s apparatus for conditioning atmosphere from an industrial furnace with *Rush*'s air conditioning apparatus to achieve Applicant's apparatus for simultaneous heat and mass transfer utilizing a carrier-gas.

Without further addressing the merits of the Examiner's statements regarding the pending dependent claims 17 and 18, which are not conceded, Applicant points out that these claims depend from and include all of the limitations of independent claim 12. Therefore, Applicant's dependent claims distinguish the cited references for at least the same reasons discussed above with regard to independent claim 12, and the disclosure of *Rush* does not cure these deficiencies of the *Paulson* disclosure. Thus, Applicant respectfully requests that the Examiner withdraw the rejections of pending dependent claims 17 and 18.

IX. Rejection of Claim 20 Under 35 U.S.C. § 103(a)

Claim 20 stands rejected under 35 U.S.C. § 103(a) as allegedly obvious over *Paulson* in view of *Mager*. To establish a *prima facie* case of obviousness, "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." MPEP § 2143.03 (citing *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970)). "If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious." MPEP § 2143.03 (citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)). The Office states that it would have been "obvious . . . to provide the well known calcium chloride desiccant of Mager for the desiccant of Paulson." But the Office ignores *Mager*'s objective "that no appreciable loading of the desiccant takes place." *Mager*, Col. 1, ll. 64-65. This objective teaches away from Applicant's "desiccant regenerator having an inlet and an outlet, wherein the outlet provides a *regenerated* desiccant stream to the desiccant inlet of the heat-releasing chamber, and wherein the inlet receives a *spent* desiccant stream from the desiccant outlet of the heat-releasing chamber." *See* Claim 12 (emphasis added). Moreover, the Office offers no discussion as to why one of skill in the art would combine *Paulson*'s apparatus for conditioning atmosphere from an industrial furnace in a "closed system" with *Mager*'s desiccant cartridge "that is joined to the surrounding air" in an "open system." *Paulson*, Col. 2, ll. 31-37; *Mager*, Col. 1, l. 61 to Col. 2, ll. 5.

Without further addressing the merits of the Examiner's statements regarding the pending dependent claim 20, which are not conceded, Applicant points out that these claims depend from and include all of the limitations of independent claim 12. Therefore, Applicant's dependent claim distinguishes the cited references for at least the same reasons discussed above with regard to independent claim 12, and the disclosure of *Mager* does not cure these deficiencies of the

Paulson disclosure. Applicant respectfully requests that the Examiner withdraw the rejection of pending dependent claim 20.

X. Conclusion

Should the Office wish to discuss this case, the Examiner is invited to call the undersigned at (312) 913-0001.

Respectfully submitted,

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